

REMARKS/ARGUMENTS

The Applicants have carefully considered this Application in connection with the Examiner's Action, and respectfully request reconsideration of this application in view of the following remarks.

The Applicants originally submitted Claims 1-43 in the Application. In response to a restriction requirement, the Applicants previously elected Claims 1-10 and withdrew Claims 11-43 from consideration pending the filing of a Divisional Application. The Applicants subsequently canceled Claims 1-10, without prejudice or disclaimer, and added new Claims 44-54. Thereafter, the Applicants canceled Claim 48 without prejudice or disclaimer. Presently, the Applicants have canceled Claim 54 without prejudice or disclaimer. Accordingly, Claims 44-47 and 49-53 are currently pending in the Application.

I. Drawings Objection

The Examiner has objected to the drawings as not showing every feature of the invention specified in the claims. Specifically, the Examiner asserts that the drawings do not show a semiconductor device comprising a silicon carbide tub located within a trench in a conductive substrate and a CMOS device formed in the conductive substrate and having a tub comprising a material different from the silicon carbide tub, such as recited in Claim 44. In view of the Examiner's objection to the drawings, the Applicants have added new FIGURE 3C. No new matter is being added as this was previously contained within the claims. Accordingly, the Applicants request the Examiner to withdraw this objection.

II. Specification Objection

The Examiner has objected to the Specification as failing to provide proper antecedent basis for the claimed subject matter. Specifically, the Examiner states that an embodiment must be discussed wherein a semiconductor device comprises a silicon carbide tub located within a trench in a conductive substrate and a CMOS device formed in the conductive substrate and having a tub comprising a material different from the silicon carbide tub, such as recited in Claim 44. In view of newly added FIGURE 3C, the Applicants have added a new paragraph that should be placed after the paragraph ending on page 19, line 8. Accordingly, the Applicants request the Examiner to withdraw this objection.

III. Rejection of Claims 44-53 under 35 U.S.C. §112

The Examiner currently rejects Claims 44-53 under 35 U.S.C. §112, first paragraph, asserting that they contain subject matter which was not described in the specification in such a way as to enable one skilled in the art to which it pertains to make and/or use the invention. Specifically, the Examiner states that there is not adequate description in the specification to disclose how the silicon carbide layer 210 is grown in a trench 209, as recited in the embodiment of FIGURE 2F. One skilled in the art of growing silicon carbide layers would easily know the process that might be used to grow a silicon carbide layer over a substrate, as well as within a trench in the substrate, without further detail in the specification. As the growth steps for the silicon carbide layer are conventional, no further detail is warranted or needed. Accordingly, one skilled in the art to which it pertains would be able to make and/or use the invention, contrary to the Examiner's beliefs. Accordingly, the Applicants request the Examiner to withdraw this §112 rejection.

IV. Rejection of Claims 44-54 under 35 U.S.C. §112

The Examiner currently rejects Claims 44-54 under 35 U.S.C. §112, second paragraph, asserting that they are indefinite for failing to particularly point out and distinctly claim the subject matter which the Applicants regard as their invention. It appears that the Examiner is incorrectly reading the Claims of the present invention. Specifically, the Claims are directed to a semiconductor device that contains both a lateral MOSFET and a CMOS device. The Applicants can find no claim language that states the MOSFET includes the CMOS.

Additionally, the Applicants can find no reference in the claims that requires the material to be different than the tub. The actual claim language is as follows : tub comprising a material different from the silicon carbide tub. The Claim language is clear that the materials of the two tubs are different. Accordingly, the Applicants request the Examiner to withdraw these two §112 rejections.

V. Rejection of Claims 44-54 under 35 U.S.C. §103

The Examiner has rejected Claims 44-54 under 35 U.S.C. §103(a) as being unpatentable over U.S. Patent No. 5,326,991 to Takasu ("Takasu"), in view of U.S. Patent No. 5,489,792 to Hu, et al. ("Hu) and U.S. Patent No. 4,896,194 to Suzuki ("Suzuki"). However, the combination of Takasu, Hu and Suzuki fails to support a *prima facie* case of obviousness of Claim 44 and its dependent claims because the combination fails to teach or suggest each and every element recited in Claim 44.

The Examiner asserts that the process limitation of forming a silicon carbide tub in a trench is a product by process claim that would carry no patentable weight. The Applicants strongly disagree. First, the claim does not recite forming a silicon carbide tub in a trench, but recites a

silicon carbide tub located within a trench. Thus, the Examiner's characterization of the claim language is incorrect. Second, both the trench and the silicon carbide tub are physical elements that actually exist in the claimed structure, and can not be found in other references. Therefore, this is not an old or obvious product produced by a new method, but actually a new device. Thus, no product by process elements exist in the Claim, and the Examiner must find these elements within the cited references to find the claims anticipated or obvious.

The Examiner further asserts that the combination of Takasu, Hu and Suzuki teaches or suggests the claimed elements of the invention. Takasu may teach a silicon carbide tub 22b, however, the silicon carbide tub 22b is a mesa and is not located within a trench in a substrate, as required by the present invention. Hu, on the other hand, fails to even mention a silicon carbide tub at all. Additionally, Suzuki requires a huge cavity 33 located under its silicon carbide layer 31. This huge cavity 33 prevents the silicon carbide layer 31 of Suzuki from being located in a substrate therebelow, as required by the present invention. Therefore, Takasu, Hu, and Suzuki each fail to teach or suggest the claimed element of a silicon carbide tub located within a trench in a substrate, as currently claimed by the present invention.

Nevertheless, even if the Examiner were correct about the product-by-process nature of the claim, which the Applicants strongly disagree with, there is no motivation in any of the references to combine their teachings. The sheer fact that Hu points out advantages of using an ESD device on a conductive substrate is not nearly enough motivation for one skilled in the art to combine these three references. The only skilled person that would be combining these three references in the claimed manner would be a skilled person with the current application in his or her hands using it

as a blueprint to reconstruct the present invention. The Examiner is aware that such a combination is improper.

Accordingly, the combination of Takasu, Hu and Suzuki is either improper or fails to teach or suggest each and every element of Claim 44 of the present application. In view of the foregoing remarks, the combination fails to support a *prima facie* case of obviousness of Claims 44-54 under 35 U.S.C. §103(a). Consequently, the Applicants request the Examiner withdraw the §103 rejection of Claims 44-54.

VI. Conclusion

In view of the foregoing remarks, the Applicants now see all of the Claims currently pending in this application to be in condition for allowance and therefore earnestly solicit a Notice of Allowance for Claims 44-53.

The Applicants request the Examiner to telephone the undersigned attorney of record at (972) 480-8800 if such would further or expedite the prosecution of the present application.

Respectfully submitted,

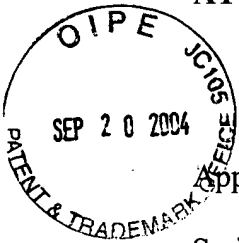
HITT GAINES, P.C.

A handwritten signature in black ink, appearing to read 'H. Parker', written over the printed name.

Greg H. Parker
Registration No. 44,995

Dated: 9-16-64

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IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

Applicant: Ashraf W. Lotfi, *et al.*
Serial No.: 09/448,856
Filed: November 23, 1999
Title: SiC NMOSFET FOR USE AS A POWER SWITCH AND
A METHOD OF MANUFACTURING THE SAME
Group: 2811
Examiner: Ori Nadav

Commissioner for Patents
P.O. Box 1450
Alexandria, VA 22313-1450

I hereby certify that this correspondence is being deposited with the United States Postal Service as first class mail in an envelope addressed to: Commissioner for Patents, Alexandria, VA 22313, on 9-10-2004 (Date)

Elizabeth Shumaker
(Printed or typed name of person signing the certificate)

(Signature of the person signing the certificate)

Sir:

DRAWING AMENDMENT UNDER 37 C.F.R. § 1.121

The attached sheets of drawings are formal drawings to replace the informal drawings initially filed with the above-identified application.

Attachment: Replacement Sheets 1-4.

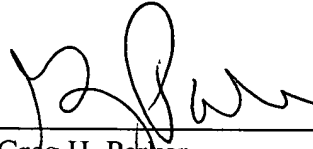
REMARKS/ARGUMENTS

The Applicants originally submitted informal drawings when the above-identified application was filed. To properly amend the drawings according to C.F.R. §1.121, the Applicant submits Replacement Sheets 1-4.

In view of the foregoing amendment and remarks, the Applicants respectfully request the acceptance of the Replacement Sheets 1-4.

Respectfully submitted,

HITT GAINES, P.C.

A handwritten signature in black ink, appearing to read 'Greg H. Parker', written over a horizontal line.

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